(No Model.) 2 Sheets—Sheet 1.

G. H. BRYANT & V. BEAUREGARD.

LIFTING JACK.

No. 486,528. Patented Nov. 22, 1892.

Fig. 1.

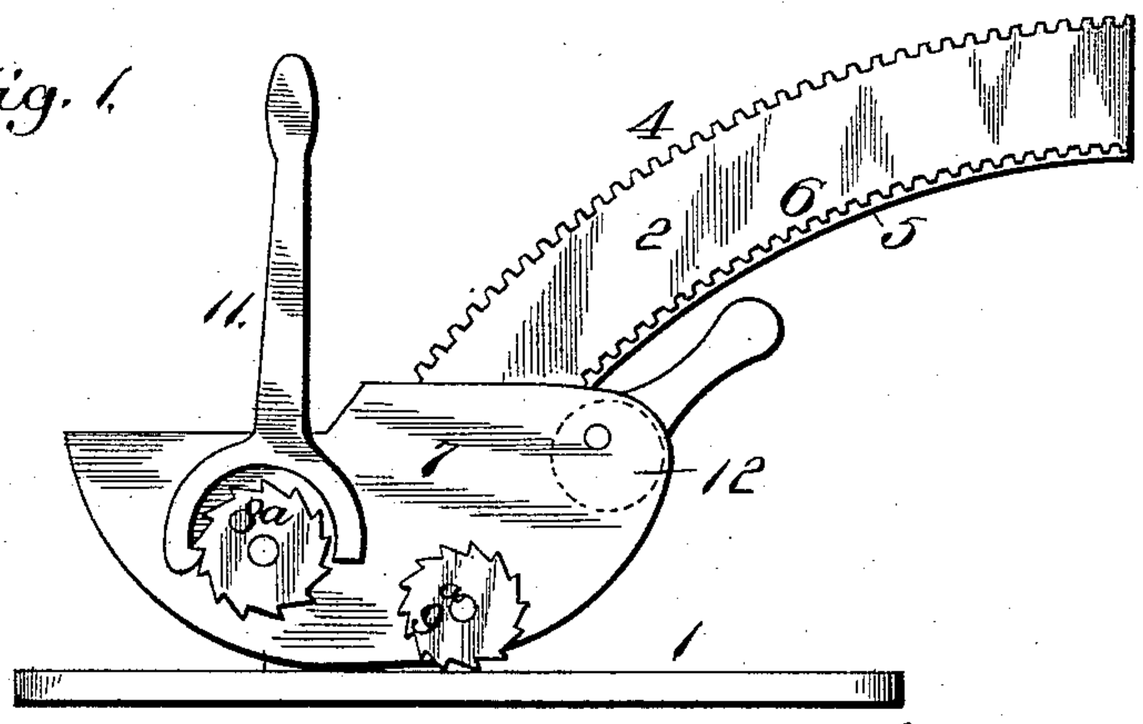


Fig. 2

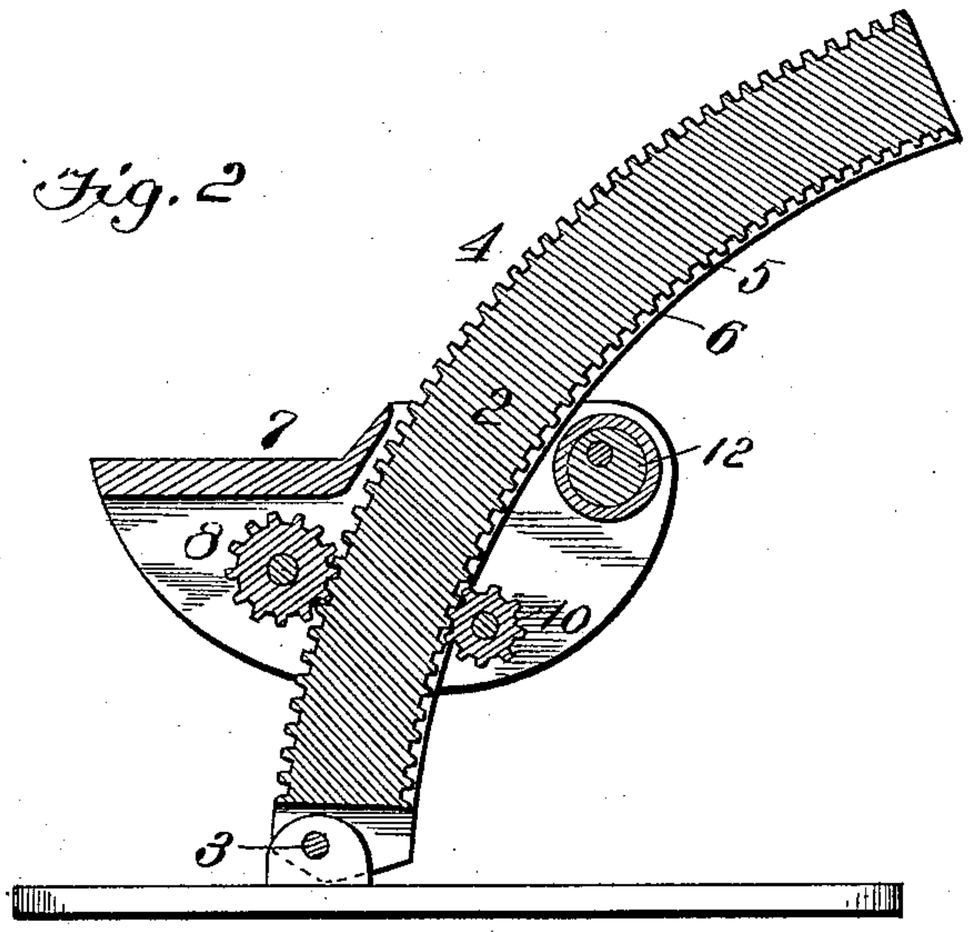
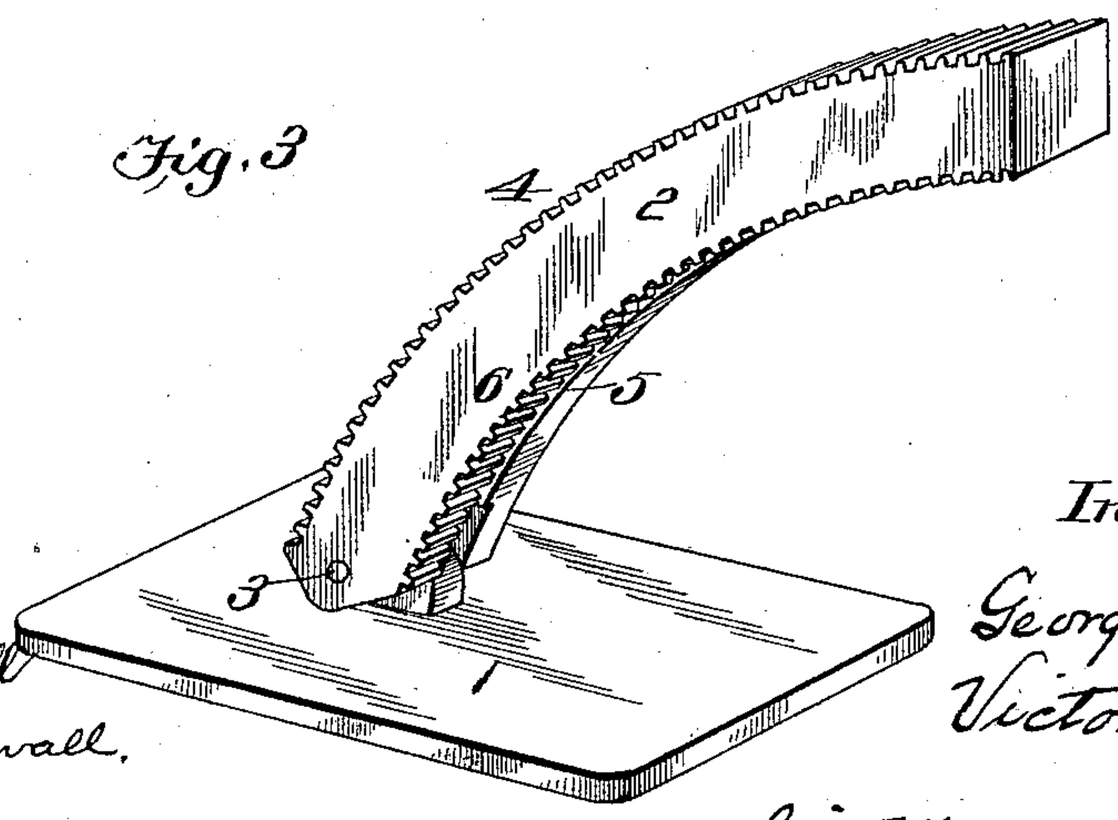


Fig. 3



Witnesses.
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George H. Bryant
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(No Model.) 2 Sheets—Sheet 2.

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Fig. 4

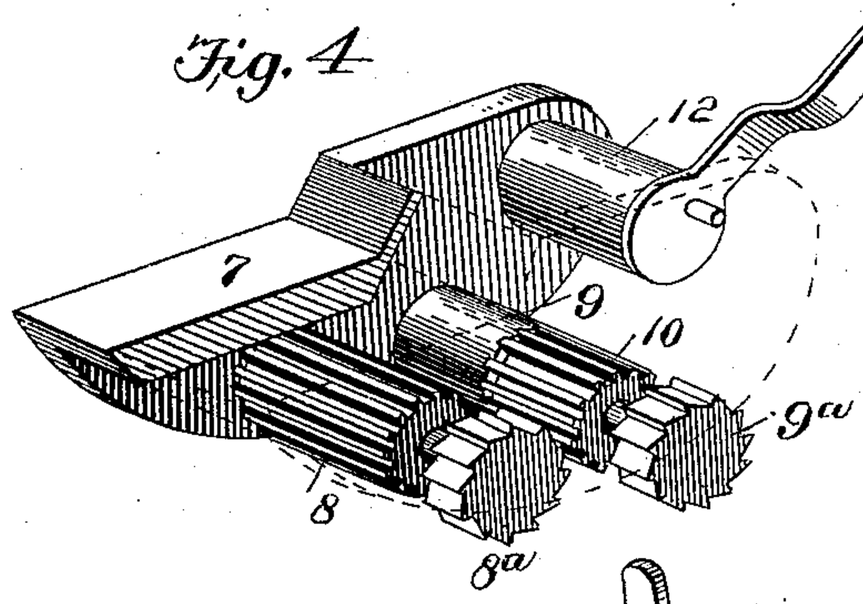


Fig. 5.

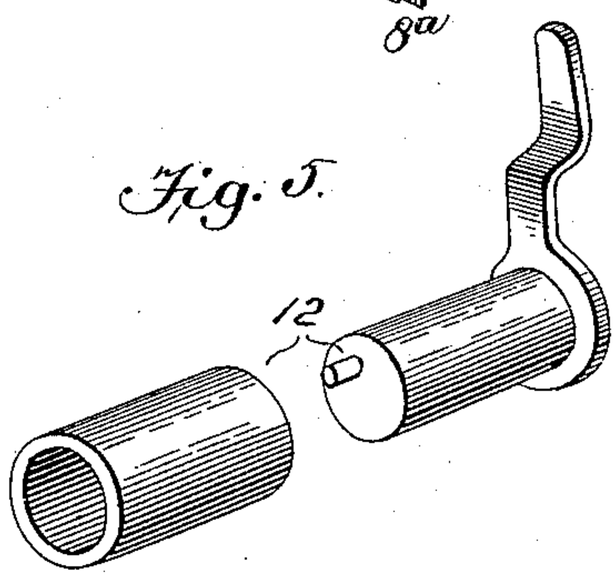
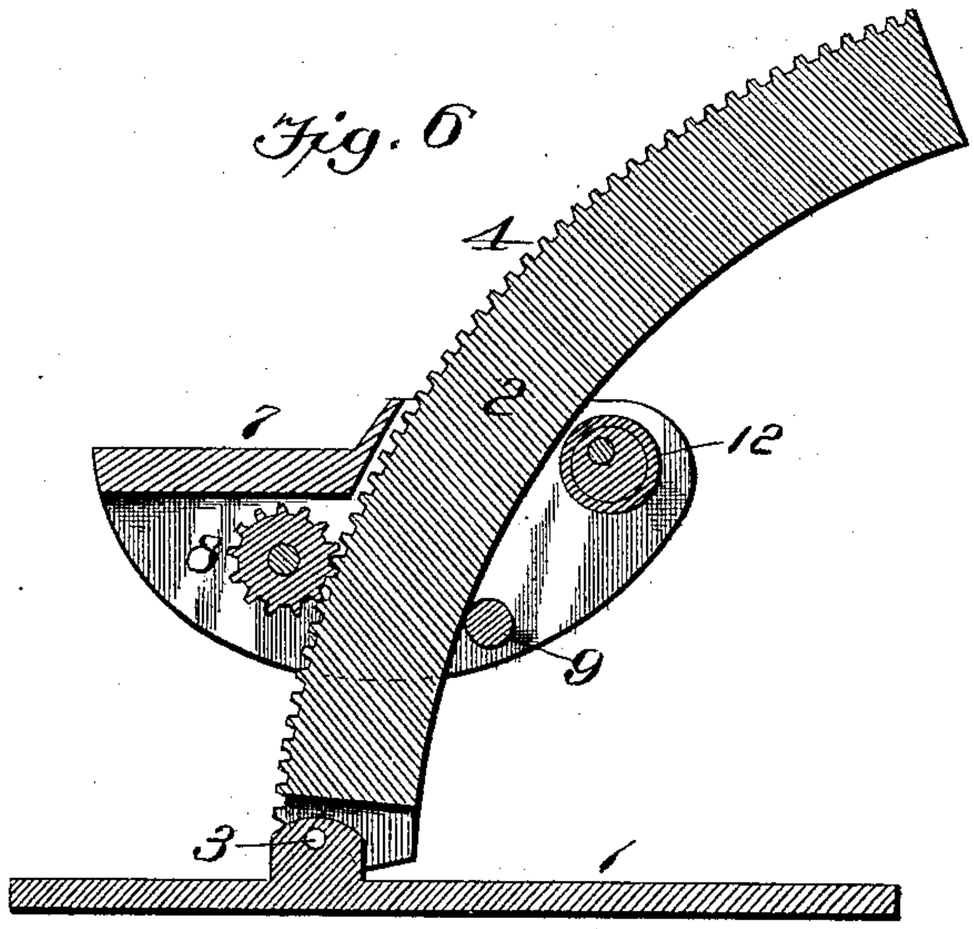


Fig. 6



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UNITED STATES PATENT OFFICE.

GEORGE H. BRYANT, OF NEWTON, AND VICTOR BEAUREGARD, OF BOSTON, MASSACHUSETTS.

LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 486,528, dated November 22, 1892.

Application filed April 21, 1892. Serial No. 430,100. (No model.)

To all whom it may concern:

Be it known that we, GEORGE H. BRYANT, residing at Newton, in the county of Middlesex, and VICTOR BEAUREGARD, residing at Boston, in the county of Suffolk, State of Massachusetts, both citizens of the United States, have invented certain new and useful Improvements in Lifting-Jacks; and we hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a lifting-jack embodying our invention. Fig. 2 is a vertical sectional view of the jack. Fig. 3 is a detail perspective view of the arc-shaped curved standard and its base. Fig. 4 is a detached sectional view of the carriage, partly in section. Fig. 5 is a detached view of the eccentrically-journaled drop-roller. Fig. 6 is a sectional view of a modification of the standard binding-roller, &c.

Like symbols refer to like parts wherever they occur.

Our invention relates to the construction of rack-and-pinion lifting-jacks in general, but has been especially devised as a "track-jack" for use in raising and adjusting railway-tracks.

In the use of jacks for raising and adjusting railway-tracks it frequently happens that the track has to be suddenly lowered for the passage of a train, when by reason of lack of time or on account of nervousness on the part of the laborers the jack is not removed, and, as a consequence, disastrous wrecks have followed from the standards of the jack being struck and the jack drawn or thrown beneath the wheels of the train.

The object of our invention is, therefore, the production of a small compact jack of great power, quick drop-action, and one in which the rack or standard will drop with the carriage and present little or no obstruction to a passing train.

To this end we combine with an inclined or curved rack-standard a traveling carriage having a power-pinion and an eccentrically-journaled or drop roller, which, or its equivalent, embodies the first feature of our invention.

We also combine with a carriage and power-pinion a pivoted, curved, or arc-shaped rack-standard, which, or its equivalent, embodies a second feature of our invention.

There are other minor features of invention, all as will hereinafter more fully appear.

We will now proceed to describe our invention more fully, so that others skilled in the art to which it appertains may apply the same.

In the drawings, 1 indicates a suitable base, and 2 a standard pivoted thereto, as at 3. Said standard is preferably of arc shape or curved form, having a rack 4 on its periphery or convex face to engage with a power-pinion mounted on the carriage 7, which travels on the standard 2. The opposite or concave face of said standard 2 is made smooth or plain, as indicated at 5, to afford a friction-surface and coact with the binding-roller and eccentrically-journaled drop-roller of the carriage when a quick drop-action of the jack is desired, and, when, in addition thereto, it is also desired at times to control and retard the fall of the carriage a sunken rack 6 is formed in or attached to one longitudinal half of the concave face of the standard, as shown in Fig. 3.

7 indicates the jack-carriage arranged to travel on the standard 2 and provided with a power-pinion 8, adapted to engage the rack on the convex or curved face of the standard, and with a bearing or binding roller 9, arranged to bind on the smooth portion 5 of the concave face of the standard. In addition to the plain roller 9, which is all that is necessary when only a quick drop of the carriage 7 is required, (see Fig. 6,) I may secure to the shaft of said roller a pinion 10, adapted to engage the sunken rack 6 on the concave face of the standard 2, as a means for controlling the descent of carriage 7. The shafts of said rollers and pinions are provided with ratchet-wheels 8^a 9^a or equivalent means for rotating said shafts and pinions by a wrench 11 or otherwise, as may be preferred.

Eccentrically journaled in the carriage 7, above the binding or bearing roller 9, is a roller 12, adapted by its eccentricity to be moved to and from the concave face of the standard 2, so as to force the standard 2 away from the bearing-roller 9, and thus permit the sudden drop or descent of the carriage 7. Owing to the function of the roller 9, we term it

the "binding-roller," and for a similar reason we term the roller 12 the "drop-roller."

The construction being substantially of the character hereinbefore specified, the devices will operate as follows: The carriage 7 being placed beneath the track or other object to be raised and the power-pinion 8 rotated, the carriage will travel up or outward on the rack, being bound and held from reverse movement by the binding-roller 9, which bears on the concave face of standard 2. The pivoted rack will gradually rise or approach the vertical with the upward or outward travel of the carriage until the carriage has reached the desired height or the extreme outward limit of its travel on rack 4. The carriage may then be gradually lowered by means of pinion 10 and the rack on the concave face of standard 2, or it may be quickly dropped by throwing forward the eccentrically-journaled or drop roller 12, so as to force the concave or inner-curved face of the standard 2 out of contact with the binding-roller 9 and its rack out of gear with the pinion 10.

For many purposes and especially in track-jacks the pinion 10 and the rack in the concave face of the pivoted standard 2 may be omitted, and though an arc-shaped pivoted standard is the preferred form, as one calculated to give the greatest movement with most compact form, yet a straight-pivoted standard may be used, if preferred.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a lifting-jack, the combination, with a pivoted standard, of a carriage adapted to travel thereon and rotating means for propelling the carriage along the standard, said means mounted on the carriage, substantially as and for the purposes specified.

2. In a lifting-jack, the combination, with a pivoted rack-standard, of a carriage adapted to travel thereon and a power-pinion journaled on the carriage and arranged to engage the rack of the pivoted standard, substantially as and for the purposes specified.

3. In a lifting-jack, the combination, with a pivoted rack-standard, of a carriage adapted to travel thereon, said carriage provided with a power-pinion and a binding-roller which engages the pivoted standard, substantially as and for the purposes specified.

4. In a lifting-jack, the combination, with a pivoted rack-standard, of a carriage adapted to travel thereon, a power-pinion for moving the carriage along the standard, and a drop-roller for causing the fall of the carriage, substantially as and for the purposes specified.

5. In a lifting-jack, the combination, with a pivoted standard having racks 4 and 6 and plain surface 5, of a carriage adapted to travel thereon and provided with pinions 8 and 10 and binding-roller 9, substantially as and for the purposes specified.

6. In a lifting-jack, the combination, with a pivoted, curved, or arc-shaped standard, of a carriage adapted to travel thereon and means for propelling the carriage along the curved standard, substantially as and for the purposes specified.

In testimony whereof we affix our signatures in presence of two witnesses.

GEORGE H. BRYANT.
VICTOR BEAUREGARD.

Witnesses as to George H. Bryant:
RICHD. W. WRIGHT,
J. C. ROUZER.
Witnesses as to Victor Beauregard:
H. W. MASON,
GEORGE W. JACKSON.